TIMBER BLOCK

FIELD OF THE INVENTION

This invention relates to a timber block for use in load bearing applications. The invention has particular, but not exclusive, application to a timber block that can be assembled in cross bonded layers arranged such that the ends thereof overlap at the corners and interlock with the layers above and below to form for example, a load bearing internal skin of an external wall.

BACKGROUND OF THE INVENTION

It is well known to use insulation and concrete blocks to form load bearing walls, such as in dwellings. Standard insulation and concrete blocks are structural and are easy to lay, they are not restricted by on site changes to building designs and are compatible to a brick module. They also have good sound abating properties.

However, they may only be bonded together by cement mortar limited to a favourable environment. There are no built in areas for internal services and insulation. Attention also needs to be given to the maximum lift permitted at one time to avoid block work 'slumping' before curing. This is not conducive to a fast track build.

SUMMARY

At least one embodiment of the present invention is intended to provide a timber block that can be cut to length in a simple manner.

At least one embodiment of the present invention aims to provide a timber block that can accommodate services.

At least one embodiment of the present invention seeks to attain the positive characteristics of insulation and concrete blocks and overcome or minimise the aforementioned problems.

The present invention provides an elongate timber block that is calibrated along its length. The calibration may be provided by surface markings such as lines applied to the block. The markings facilitate cutting the block to length. The block is adapted to be stacked with like blocks for assembly of a load bearing wall and the markings form a calibrated vertical grid for alignment in assembly.

The block preferably comprises a plurality of parallel, in use vertically oriented, timber components spaced apart along the length of the block. The timber components have a measured space between adjacent components, the spacing being restricted to the limits allowed for the structural integrity of the block.

The timber components preferably extend between upper and lower timber members and the calibration markings are applied to one or both timber members between the timber components so that the block can be cut to length through the upper and lower members without cutting through the timber components.

The timber components may be bridged by suitable means, such as a panel of sheet material, fixed/bonded to the components on at least one side of the block. The panel may have incisions aligned with the calibrated markings to aid sawing through the panel when cutting the block to the required length. The panel may be made of material that

strengthens or reinforces the block, for example oriented strand board (OSB) or plywood or similar structural sheet material.

The upper and lower timber members may extend horizontally beyond the timber components in a direction perpendicular to the length of the block on one or both sides of the block. The block may be faced by panels of sheet material on one or both sides of the block that are received between the timber members and preferably attached to the timber components. The facing panels may be made of insulation material and be arranged substantially flush with the edges of the upper and lower timber members.

The space between adjacent timber components may contain insulation material. Alternatively or additionally, the space between adjacent timber components may provide an area for building in internal services such as wiring or pipes. Side edge faces of the upper and lower timber members provide for fixing of internal linings and external cladding.

The block may be provided with internal regions to pass through, in use, services between the timber components as well as the seating of joists on required sections. The upper and lower members may be provided with holes, preferably aligned, between the timber components through which services can be routed.

The holes are preferably aligned with the calibration markings so that the holes align with holes in adjoining blocks above and/or below when the blocks are assembled using the calibration markings to position the blocks relative to each other. In this way, passage of services such as cables or pipes is facilitated when several blocks are assembled to construct a wall.

The holes are preferably located wholly within the space between the timber components so as to be concealed by sheet material attached to and bridging the timber components.

These and other features, benefits and advantages of the present invention will be understood from the description hereinafter of exemplary embodiments with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view from one end and one side of a timber block embodying the invention;

Figure 2 is perspective view from one end and the other side of the timber block shown in Figure 1;

Figure 3 is a side view of part of the timber block shown in Figure 1 taken in the direction of arrow A;

Figure 4 is a side view of part of the timber block shown in Figure 1 taken in the direction of arrow B;

Figure 5 is an end view of the timber block shown in Figures 1 to 4 with insulation boards connected to each side; and

Figure 6 shows an assembly of timber blocks to form a load bearing wall.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

Referring to the accompanying drawings, there is shown an elongate timber block 1 for assembly with like timber blocks to form for example,

a load bearing internal skin of an external wall. The blocks may be stacked in cross bonded layers arranged such that the ends thereof overlap at the corners and interlock with layers above and below

The timber block 1 comprises a plurality of timber components 2 extending transverse to the length of the block 1 between upper and lower timber members 3 and 4 respectively extending lengthwise of the block 1. The timber components 2 and timber members 3,4 may be made of any suitable materials, for example natural wood or wood composites or wood substitutes, and are secured together by any suitable means, for example adhesive or fasteners such as screws or nails.

The timber components 2 are arranged parallel to each other and are regularly spaced apart a distance "x". The timber members 3,4 are also arranged parallel to each other and spaced apart a distance "y". In use, the timber components 2 are arranged vertically and the timber members 3,4 are arranged horizontally. It will be understood that the timber block 1 may be provided in pre-determined standard lengths, for example 2.4 metres (8 feet), and the number and spacing of the timber components 2 may be varied according to strength and/or load bearing requirements for the intended application. In this embodiment, the timber components 2 are uniformly spaced apart.

The timber components 2 are of rectangular cross-section and present planar surfaces 2a, 2b on opposite sides of the timber block 1. The surfaces 2a on one side of the timber block 1 are co-planar and the surfaces 2b on the other side are co-planar.

The timber members 3,4 are also of rectangular cross-section and present outwardly facing planar upper and lower surfaces 3a,4a at the top and bottom of the timber block 1. The timber members 3,4 also present

planar side edge faces 3b,3c and 4b,4c on opposite sides of the timber block 1. The upper and lower side edge faces 3b,4b on one side are co-planar and the upper and lower side edge faces 3c,4c on the opposite side are co-planar.

The timber members 3,4 are wider than the timber components 2 and the surfaces 2a,2b of the timber components 2 are inset from the side edge faces 3b,3c,4b,4c of the timber members 3,4 on both sides of the timber block 1. A reinforcing/bridging panel 5 of rigid structural sheet timber material, for example OSB or plywood, is received between the upper and lower members 3,4 on one side of the timber block 1 and is secured to the surfaces 2a of the timber components 2, for example by adhesive and/or mechanical fixings such as screws or nails.

The space between adjacent timber components 2 is partially filled with insulation 6, for example blocks of rigid insulation board. The insulation 6 locates against the panel 5 on one side of the timber components 2 and is inset from the surface 2b on the other side of the timber components 2 (see Figures 1 and 5) to leave a zone 8 between the timber components 2 in which to pass services such as wiring, pipes through stacked timber blocks above and below and which may also support joists (not shown) at specific layers.

The timber members 3,4 are provided with pairs of aligned upper and lower holes 9a,9b spaced apart lengthwise of the timber block 1 and arranged in the zone 8 between the timber components 2. In this embodiment, one pair of aligned holes 9a,9b is provided between each pair of adjacent timber components 2. The holes 9a,9b are inset from the surface 2b of the timber components 2 (see Figure 5) and permit routing of services, such as pipes and cables (not shown).

Further insulation 10, such as panels of a rigid insulation board are secured to the panel 5 between the timber members 3,4 on one side of the timber block 1 and to surfaces 2b of the timber components 2 between the timber members 3,4 on the other side of the timber block 1 (see Figure 5). The insulation 10 is substantially flush with the upper and lower side edges 3b,4b and 3c,4c of the timber members 3,4 on each side of the timber block 1. The insulation 10 may be omitted on one or both sides. Alternatively, the insulation 10 may be replaced with a panel of structural sheet timber material similar to the panel 5 on one or both sides to strengthen further the timber block 1. This additional strengthening may be useful where the block 1 extends over an opening such as a door or window.

The timber block 1 is calibrated to facilitate cutting the block 1 to any desired length on site according to requirements during construction of a load bearing wall. For this, the upper and lower timber members 3,4 are each provided with a series of regularly spaced calibration markings 11 in the form of lines 11 applied to the upper and lower surfaces 3a,4a and side edge faces 3b,4b and 3c,4c. The markings 11 on the upper member 3 are aligned with the markings 11 on the lower member 4 and are arranged so that the timber components 2 are located between the markings 11 and do not obstruct the calibrated outline of the timber block 1. The holes 9a,9b are aligned with the markings 11.

The panel 5 is also provided with calibration markings 12 in the form of spaced apart incisions 12 that align with the calibration markings 11 on the upper and lower timber members 3,4. The incisions 12 may extend partially or completely through the panel 5. For example, the incisions 12 may comprise slots that extend completely through the panel 5 for less than the full height of the panel 5 to maintain the integrity of the panel 5.

Alternatively the incisions 12 may comprise grooves that extend partially through the panel 5 for all or part of the height of the panel 5.

Each incision 12 may comprise a single incision or a series of shorter incisions. The incisions 12 facilitate cutting the timber block 1 to a required length without significantly affecting the integrity, and strength and load carrying capability of the timber block 1. The markings 11 and incisions 12 may have any desired spacing to allow the timber block 1 to be cut to pre-determined lengths, for example modular sizes according to the type of build. In this embodiment, the markings 11 and incisions 12 are spaced 50mm (2") apart but it will be understood that other spacings may be employed.

The markings 11 on the side edge faces 3b,4b and 3c,4c provide a measuring gauge during construction when the next timber block 1 to be added needs cutting to a desired length for assembly. The markings 11 on the side edge faces 3b,4b and 3c,4c also provide a calibrated vertical grid for aligning and fixing internal linings such as plaster board (not shown) and external cladding such as weather proof cladding (not shown) to the timber blocks 1. The markings 11 also enable adjoining timber blocks 1 above and/or below to be arranged with the holes 9a,9b aligned so that services such as pipes, cables can be easily routed through when the blocks 1 have been assembled to construct a wall. The markings 11 may be colour coded to aid these processes.

It will be appreciated that the invention provides a timber block that can be assembled with like timber blocks to construct a load bearing wall. The block can be cut to size using the calibration markings in regions clear of the timber components and the holes for routing services between the timber components. The incisions in the sheet material bridging the

timber components do not significantly affect the load bearing capability of the block and facilitate cutting through the block.

Although the invention has been described with reference to the best method currently known to the applicant, it will be understood that the invention is not limited to the combination of features described and illustrated.

For example, the timber components may have cross-sections other than rectangular although it is preferred to employ a section that provides planar surfaces on one or both sides of the block that can be aligned to provide a co-planar surface for attaching sheet material bridging the timber components.

The number and arrangement of timber components may be chosen as desired according to the intended application of the block. The timber components may be of the same section and uniformly spaced apart as described. For some applications, however, it may be desirable to employ timber components having different sections and/or to vary the spacing between the timber components, for example to provide increased strength, rigidity in particular regions of the block.

Moreover, in the above-described embodiment, side edges of the upper and lower timber members 3,4 of the block 1 are linear in the longitudinal direction and form a straight wall when assembled with other similar blocks 1. It will be understood, however, that the invention has application to timber blocks in which the side edges of the upper and lower timber members 3,4 are curved (radiused) in the longitudinal direction. Such blocks may be employed to construct a curved (radiused) wall when assembled with other similar blocks.

Furthermore, the timber block may comprise any feature described herein separately or in combination with any other feature.

Other modifications that can be made to the block will be apparent to those skilled in the art and the invention includes all variations within the spirit and scope of the invention as described herein and defined in the following claims.